

HEPATITIS C

Surveillance Report
2001



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Prepared by: Office of the Provincial Medical Officers of Health
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Introduction

Hepatitis C is a viral infection caused by the Hepatitis C virus (HCV). Surveillance of Hepatitis C infection in Nova Scotia relies on the reporting of positive cases by physicians and clinical laboratories and on the follow-up of positive cases by public health staff. Hepatitis C positive individuals are also identified and reported by Canadian Blood Services (CBS). The infection has been reportable in Nova Scotia since 1994.

Laboratory results and risk factor information acquired through public health follow-up of positive cases are forwarded to the Office of the Provincial Medical Officer of Health, where the data is maintained on an ACCESS database for surveillance purposes. In the past, aggregate data for Hepatitis C has been forwarded on a monthly basis to the Centre for Infectious Disease Prevention and Control (CIDPC) at Health Canada in Ottawa. With the implementation of the new Enhanced Hepatitis Surveillance System (EHSS) developed by Health Canada for surveillance of Hepatitis B and C, more detailed surveillance information is now be maintained on an ACCESS database and forwarded to CIDPC on a monthly basis. This enhances our ability to better understand this disease on both a provincial and national level. This report provides a summary of reported cases of Hepatitis C in Nova Scotia between 1990 and 2001.

Case Definition for Hepatitis C

According to the National Surveillance Case Definition for Hepatitis C¹, a confirmed case is characterized by laboratory confirmation of infection with/without symptoms if:

< 1 year of age^a: the Hepatitis C virus RNA PCR^b is positive regardless of the result of testing for antibody to the virus (anti-HCV)^c.

> 1 year of age: the individual is anti-HCV positive^d or Hepatitis C virus RNA PCR positive^e, if anti-HCV negative.

NB: The following should be noted:

- a) Cord blood should not be used due to contamination from maternal blood.
- b) Optimum time following birth for HCV RNA PCR testing undefined; testing at 4-6 weeks and/or at 6 months to 1 year recommended.
- c) HCV antibody testing should not be done in infants <1 year due to detectable levels of maternal antibody. If antibody testing performed and found to be reactive at 1 year of age, PCR testing should be done to confirm viremia and rule out presence of maternal antibody.
- d) Confirmation of positive tests should be done using dual EIA testing or immunoblot/PCR based testing.
- e) PCR testing should be done only in anti-HCV negative persons when clinically indicated.

¹Case Definitions for Diseases Under National Surveillance 2000. Advisory Committee on Epidemiology and Division of Disease Surveillance, Bureau of Infectious Diseases, Laboratory Centre for Disease Control, Health Protection Branch, Health Canada. Minister of Public Works and Government Services, 2000. Cat. No. H49-141/2000.

Limitations

Reporting of Hepatitis C

Out of Province Testing:

Individuals who may reside in Nova Scotia, but have previously tested positive outside of the province, will not be reported here and therefore do not appear in Nova Scotia provincial statistics (cases are attributed to the province where the initial positive diagnosis was made).

Reporting Delay and Lost to Follow-Up:

There may be a delay in reporting or absence of risk factor information if public health has difficulty or is unable to locate a Hepatitis C infected individual. Further, individuals (if located) may be unwilling to provide risk factor information.

Risk Factor Information:

Multiple risk factors may be reported for a given individual. The reporting of risk factor information does not imply causation.

Hepatitis C Surveillance in Nova Scotia

Between 1990 and 2001, 2,629 cases of Hepatitis C were reported in Nova Scotia. Incidence rates increased overall between 1992 and 1997 when the rate peaked at 56.3 cases per 100,000 population. This rapid increase in incidence may reflect the impact of programs implemented in Nova Scotia related to Hepatitis C and the blood supply. Since 1997, incidence has continued to decline to a rate of 21.3 cases per 100,000 in 2001 (Table 1, Figure 1). Sixty-seven percent (67%) of cases reported over this 12-year period were diagnosed in males and 31% in females. Males consistently had the highest rates of incidence over this period (Table 2, Figure 2). District Health Authority 9 (Capital) had the highest age-standardized incidence of 29 cases per 100,000 population (Table 3, Figure 3).

In 2001, 85% of male and 78% of female cases of Hepatitis C reported were 30 years of age or older. No cases were reported in those <20 years of age. Males, 40 to 59 years of age, had the highest incidence of 81.9 cases per 100,000 population (Table 4, Figure 4).

Fifty-nine percent (59%) of reported cases between 1990 and 2001 had follow-up risk factor information provided. It should be emphasized that reporting a risk factor does not imply causation and further, more than one risk factor may be reported for a given individual. Of the 1,545 cases with risk factor information, injection drug use (IDU) was identified as a risk factor in 56%, receipt of tattoos in 34%, blood transfusion in 31% and sharing needles in 28% of cases (Table 5). Selected risk factors have been graphically displayed over time (Figures 5–8). Of note, is the apparent increase over time in those reporting IDU and the apparent decrease over time in those reporting blood transfusion as risk factors.

Table 1. Reported Number of Cases and Incidence of Hepatitis C by Year of Positive Test, Nova Scotia, 1990-2001

Year	Number of Cases	Rate per 100,000
1990	46	5.0
1991	41	4.5
1992	35	3.8
1993	108	11.8
1994	78	8.5
1995	149	16.3
1996	341	37.3
1997	515	56.3
1998	460	50.3
1999	345	37.7
2000	284	31.0
2001	195	21.3
No year provided	32	3.4

Rates based on 1991 census population of Nova Scotia

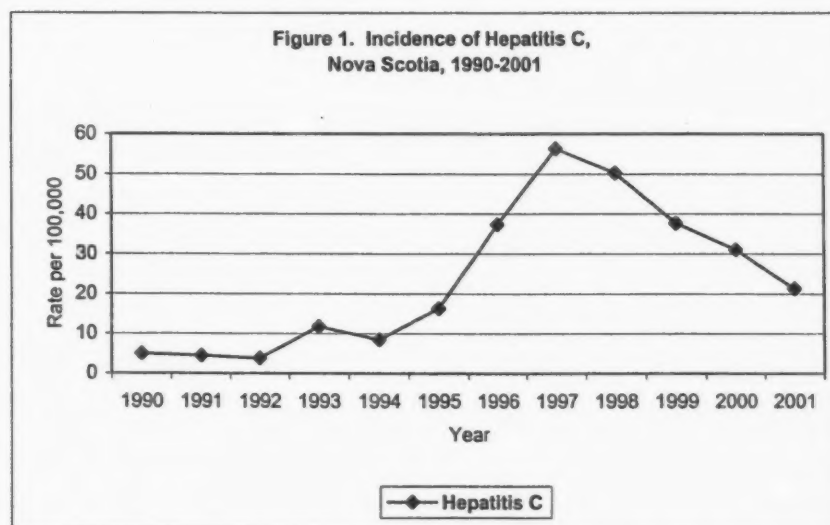


Table 2. Reported Number of Cases and Crude Incidence of Hepatitis C, Nova Scotia, by Sex, 1990-2001

Year	Male		Female		Unknown		Total	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
1990	36	8.0	10	2.2	-	-	46	5.0
1991	33	7.3	8	1.7	-	-	41	4.5
1992	24	5.3	11	2.4	-	-	35	3.8
1993	74	16.4	32	6.9	2	-	108	11.8
1994	55	12.2	23	5.0	-	-	78	8.5
1995	95	21.0	52	11.2	2	-	149	16.3
1996	223	49.4	116	25.0	2	-	341	37.3
1997	351	77.8	162	34.9	2	-	515	56.3
1998	305	67.6	149	32.1	6	-	460	50.3
1999	225	49.8	114	24.6	6	-	345	37.7
2000	195	43.2	81	17.5	8	-	284	31.0
2001	139	30.8	54	11.6	2	-	195	21.3
Year Unknown	8	1.8	2	0.4	22	-	32	3.5

Rates based on 1991 census population of Nova Scotia

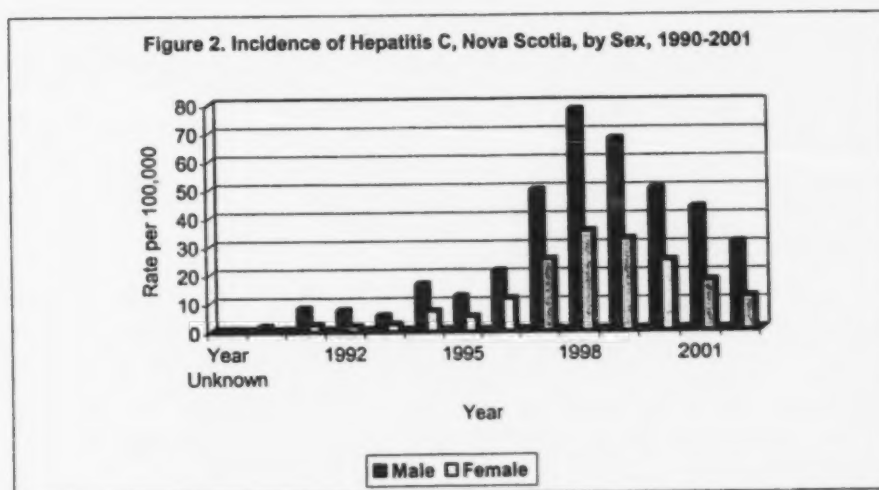


Table 3. Number of Reported Cases, Crude and Age-Standardized Rates of Hepatitis C, Nova Scotia, by District Health Authority, 2001

District Health Authority	Number of Reported Cases	Crude Rate*	Age-Standardized Rate**
DHA 1,2,3 (Western)	12	5.7	6.0
DHA 4,5,6 (Northern)	41	26.6	26.7
DHA 7,8 (Eastern)	37	18.9	20.0
DHA 9 (Capital)	105	29.5	29.0
Total	195	21.3	21.4

*Crude rates based on 1991 census population of Nova Scotia

**Rates adjusted to the age distribution of the 1991 census population of Canada. Three cases age not specified (Western: 1, Capital: 2) and not included in calculation.

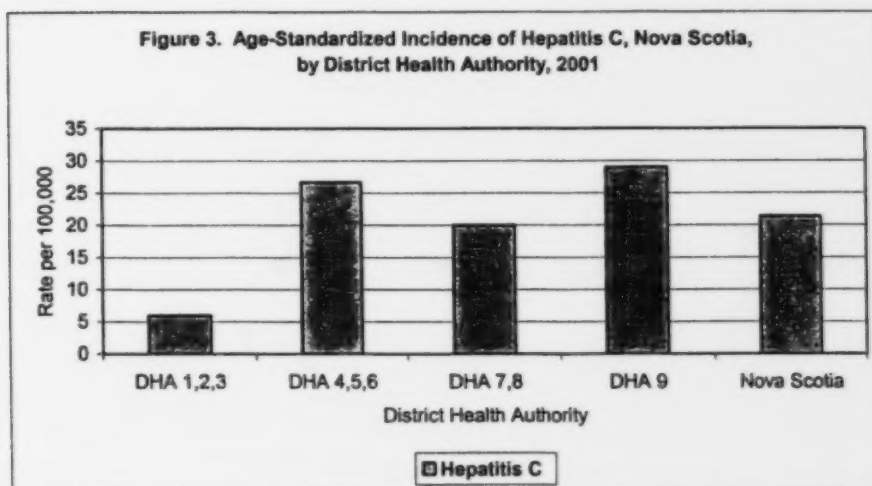


Table 4. Reported Number of Cases and Age-Specific Rates of Hepatitis C by Age-Group and Sex, Nova Scotia, 2001

	Number of Reported Cases - Male	Age- Specific Rate	Number of Reported Cases- Female	Age- Specific Rate	Number of Reported Cases - Unknown Sex	Age- Specific Rate	Total	Age- Specific Rate
	n	Rate	n	Rate	n	Rate	n	Rate
<1	-	-	-	-	-	-	-	-
1-4	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-
10-14	-	-	-	-	-	-	-	-
15-19	-	-	-	-	-	-	-	-
20-24	13	36.4	3	8.7	-	-	16	22.8
25-29	8	19.7	9	22.5	-	-	17	21.1
30-39	28	36.6	16	20.5	-	-	44	28.4
40-59	84	81.9	23	22.5	-	-	107	52.3
60+	4	6.1	4	4.7	1	-	9	6.0
Age Unknown	0	-	0	-	2	-	2	-
Total	137	30.3	55	11.9	3	-	195	21.3

Figure 4. Age-Specific Incidence of Hepatitis C, Nova Scotia, 1990-2001

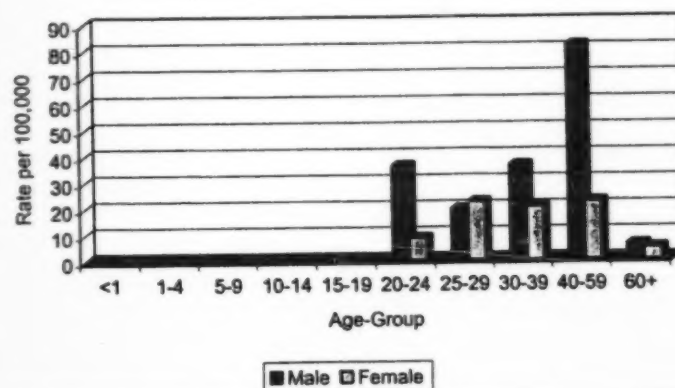


Table 5. Percentage of Reported Risk Factors for Hepatitis C by Year of Positive Test, Nova Scotia, 1990-2001
(Percentages based on the number of diagnosed cases per year with reported risk factor information)

Year	Number of Cases with Risk Factor Information	Blood		Blood Products		Dialysis		Household		Acupuncture		Tattoo		Ear Piercing		Body Piercing		Electrolysis		Injection Drug Use		Percutaneous Puncture		Sharing Needles	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1990	10	5	50	-	-	-	-	-	-	1	10	2	20	2	20	-	-	-	-	4	40	1	10	3	30
1991	7	4	57.1	-	-	-	-	2	28.6	-	-	1	14.3	3	42.9	-	-	-	-	2	28.6	1	14.3	1	14.3
1992	12	6	50	4	33.3	-	-	-	-	1	8.3	2	16.7	4	33.3	-	-	-	-	1	8.3	1	8.3	1	8.3
1993	17	14	82.4	7	41.2	-	-	-	-	2	11.8	2	11.8	5	29.4	-	-	-	-	4	23.5	1	5.9	-	-
1994	24	17	70.8	4	16.7	-	-	2	8.3	-	-	4	16.7	4	16.7	-	-	-	-	5	20.8	-	-	3	12.5
1995	42	28	66.7	4	9.5	1	2.4	-	-	-	-	5	11.9	3	7.1	-	-	-	-	11	26.2	1	2.4	2	4.8
1996	232	95	40.9	8	3.4	3	1.3	18	7.8	18	7.8	83	35.8	93	40.1	4	1.7	-	-	123	53.0	14	6.0	74	31.9
1997	348	137	39.4	6	1.7	-	-	16	4.6	33	9.5	106	30.5	111	31.9	5	1.4	6	1.7	200	57.5	15	4.3	85	24.4
1998	293	79	27	3	1.0	3	1.0	20	6.8	20	6.8	101	34.5	110	37.5	7	2.4	2	0.7	182	62.1	20	6.8	49	16.7
1999	216	37	17.1	4	1.9	1	0.5	1	0.5	20	9.3	88	40.7	86	39.8	5	2.3	4	1.9	112	51.9	24	11.1	75	34.7
2000	195	29	14.9	-	-	-	-	-	-	25	12.8	66	33.8	56	28.7	5	2.6	3	1.5	103	52.8	16	8.2	60	30.8
2001	146	22	15.1	-	-	1	0.7	17	11.6	16	11.0	64	43.8	51	34.9	8	5.5	1	0.7	112	76.7	9	6.2	79	54.1
No Year	3	2	66.7	-	-	-	-	1	33.3	-	-	2	66.7	1	33.3	-	-	-	-	1	33.3	1	33.3	1	33.3
Total	1545	475	30.7	40	2.6	9	0.6	77	5.0	136	8.8	526	34	529	34.2	34	2.2	16	1.0	860	55.7	104	6.7	433	28

Figure 5. Percentage of Reported Cases of Hepatitis C with Risk Factor Information Reporting Injection Drug Use, Nova Scotia, 1990-2001

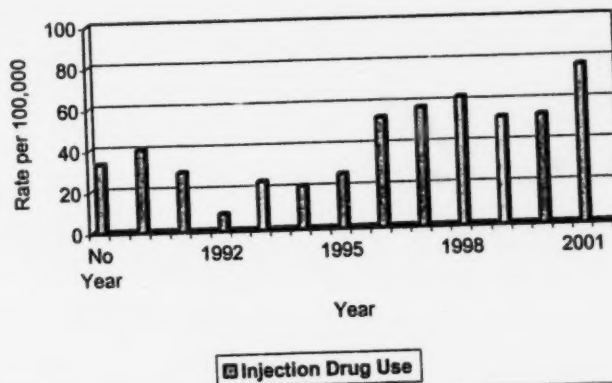


Figure 6. Percentage of Reported Cases of Hepatitis C with Risk Factor Information Reporting Blood Transfusion, Nova Scotia, 1990-2001

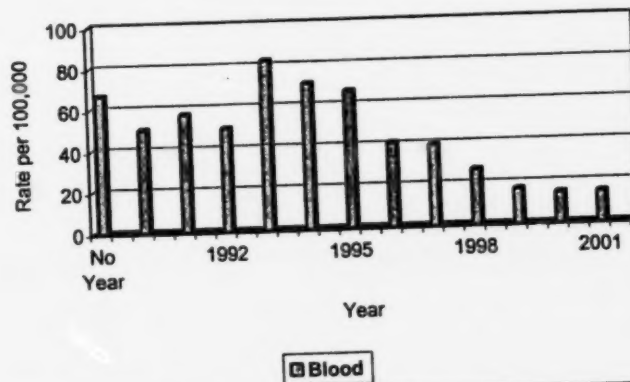


Figure 7. Percentage of Reported Cases of Hepatitis C with Risk Factor Information Reporting Tattoos, Nova Scotia, 1990-2001

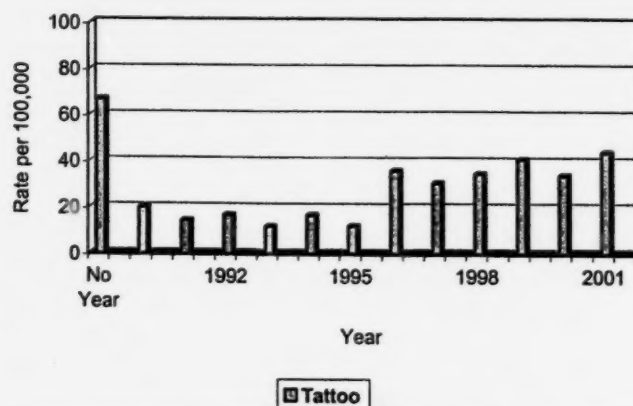


Figure 8. Percentage of Reported Cases of Hepatitis C with Risk Factor Information Reporting Sharing Needles, Nova Scotia, 1990-2001

